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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/530,047

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EXAMINER

KO, STEPHEN K

ART UNIT

PAPER NUMBER

1792

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/530,047	Applicant(s) YABE ET AL.	
	Examiner STEPHEN KO	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) 7-16, 18-32 and 34-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 17 and 33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>01 April 2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I (claims 1-6, 17 and 33) in the reply filed on 09 May 2008 is acknowledged. However, claim 17, which depends on claim 15 (a non-elected independent claim), is accidentally grouped into group I in the election/restrictions, hence claim 17 is not examined in this action of the merit. Claims 7-32 and 34-38 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species.

Specification

2. The disclosure is objected to because of the following informalities: There are Fig.4A and 4B in the drawings; however, the Brief Description of the Drawings of the specification only describes Fig.4 as a whole (See P.10).

Appropriate correction is required.

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aigo (US 5,014,727) in view of JP 55-180425.

Aigo teaches a method utilizing bubbles to clean semiconductor (read as nanotechnology associated equipment, col.1, L.7-9) in pure water (col.3, L.31).

Aigo remains silent about the size of the cleaning bubble.

However, JP 55-180425 teaches the cleaning effectiveness increase as the size of the cleaning bubble decrease (JP 55-180425, P.1, L.18 and P.2, L.1).

Since nanobubble is defined as a bubble having a diameter in nanometer, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Aigo by providing bubbles having a diameter in nanometer as inspired by JP 55-180425 to increase cleaning effectiveness (JP 55-180425, P.1, L.18 and P.2, L.1).

8. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2001-328069 in view of JP 55-180425.

JP 2001-328069 teaches a cleaning method for a dresser (read as industrial equipment, abstract) utilizing bubbles (abstract) with water (See translation, paragraph [0011]).

JP 2001-328069 remains silent about the size of the cleaning bubble

However, JP 55-180425 teaches the cleaning effectiveness increase as the size of the cleaning bubble decrease (JP 55-180425, P.1, L.18 and P.2, L.1).

Since nanobubble is defined as a bubble having a diameter in nanometer, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of JP 2001-328069 by providing bubbles having a diameter

in nanometer as inspired by JP 55-180425 to increase cleaning effectiveness (JP 55-180425, P.1, L.18 and P.2, L.1).

9. Claims 1, 4, 6, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 55-180425.

For claims 1 and 4, JP 55-180425 teaches a cleaning method utilizing bubbles, which comprises cleaning human body with water comprising bubbles.

JP 55-180425 remains silent about the size of the bubbles. However, JP 55-180425 teaches the cleaning effectiveness increase as the size of the cleaning bubble decrease (JP 55-180425, P.1, L.18 and P.2, L.1).

Since nanobubble is defined as a bubble having a diameter in nanometer, it would have been obvious to one of ordinary skill in the art at the time the invention was made to improve the cleaning method of JP 55-180425 by provide bubbles having a diameter in nanometer as inspired by JP 55-180425 to increase cleaning effectiveness (JP 55-180425, P.1, L.18 and P.2, L.1).

For claim 6, JP 55-180425 remains silent about the water further comprising microbubbles. However, JP 55-180425 teaches a step of providing bubbles at different size at the same time during operation.

Regarding claim 6 reciting the water further comprising other size of the cleaning bubble, wherein the other size of the cleaning bubble is microbubbles, it is noted that these parameters are result effective, because the size of the bubbles affects the effectiveness of massage stimulation (JP 55-180425, P.1, L.18 and P.2, L.1), and one

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skilled in the art would modify different variables to achieve optimum result, consult, *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2001-328069 in view of JP 55-180425 in further view of Oyokota et al (US 2002/0027070).

JP 2001-328069 and JP 55-180425 teach a cleaning method cited above.

Both JP 2001-328069 and JP 55-180425 do not teach the water comprising nanobubble is electrolyzed water.

However, Oyokota et al teach a method of cleaning by using electrolyzed water (paragraph [0002], [0011] and [0014]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of cleaning of combined teaching of JP 2001-328069 and JP 55-180425 by using the water comprising electrolyzed water as mentioned in Oyokota et al to provide a stronger washing power and stronger surface activity, thus increase the cleaning efficiency (Oyokota, paragraph [0014]).

11. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2001-328069 in view of JP 55-180425 in further view of Berwing et al (US 4,832,941).

Both JP 2001-328069 and JP 55-180425 teach a cleaning method cited above.

Both JP 2001-328069 and JP 55-180425 do not teach the nanobubbles are generated at least by application of an ultrasonic wave.

However, Berwing et al teaches a step of forming bubble having diameters less than 7 nm by the action of ultrasound (col.10, L.30-34).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the cleaning method of combined teaching of JP 2001-328069 and JP 55-180425 by generating nanobubbles at least by application of ultrasonic wave as mentioned in Berwing et al to provide a more quite bubble generating means with reasonable expectation of success.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN KO whose telephone number is (571)270-3726. The examiner can normally be reached on Monday to Thursday, 7:30am to 5:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Kornakov can be reached on 571-272-1303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SK

/Michael Kornakov/

Supervisory Patent Examiner, Art Unit 1792